

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) A process, comprising: a) reacting a an alkoxy silane, an (epoxy)alkoxy silane, and a fluorinated alkoxy silane to form a fluorinated sol-gel polymer; and b) reacting a nonlinear optical chromophore comprising a donor, a π -bridge, an acceptor, and at least one alkoxy silyl group with the fluorinated sol-gel polymer to form a nonlinear optical fluorinated sol-gel polymer.
2. (Original) The process of Claim 1, wherein the alkoxy group of one or more of the alkoxy silane, the (epoxy)alkoxy silane, the (fluoroalkyl)alkoxy silane, or the alkoxy silyl group of the nonlinear optical chromophore is independently selected from the group consisting of methoxy, ethoxy, propoxy, isopropoxy, butoxy, and any combination thereof.
3. (Original) The process of Claim 1, wherein the alkoxy silane is a tetraalkoxy silane.
4. (Original) The process of Claim 1, wherein the (epoxy)alkoxy silane further comprises one alkyl group.
5. (Original) The process of Claim 1, wherein the (epoxy)alkoxy silane comprises two epoxy groups.
6. (Original) The process of Claim 1, wherein the (epoxy)alkoxy silane comprises an epoxyalkyl group, a epoxycycloalkyl group, or any combination thereof.
7. (Original) The process of Claim 6, wherein the (epoxy)alkoxy silane comprises a 3-(2,3-epoxypropoxy)propyl group, a 5,6-epoxyhexyl group, a 2-(3,4-epoxycyclohexyl)ethyl group, or any combination thereof.
8. (Original) The process of Claim 1, wherein the fluorinated alkoxy silane comprises a fluorinated group including up to about 20 carbon atoms.

9. (Original) The process of Claim 8, wherein the fluorinated group is selected from the group consisting of a 3,3,3-trifluoropropyl group, a 3-(heptafluoroisopropoxy)propyl group, a pentafluorophenyl, pentafluoro-phenylpropyl group, a perfluoro-1,1,2,2-tetrahydrohexyl group, a perfluoro-1,1,2,2-tetrahydrooctyl group, a perfluoro-1,1,2,2-tetrahydrodecyl group, a perfluoro-1,1,2,2-tetrahydrododecyl group, a perfluoro-1,1,2,2-tetrahydrododecyl group, and any combination thereof.

10. (Original) The process of Claim 1, wherein the fluorinated alkoxy silane comprises two fluoroalkyl groups.

11. (Original) The process of Claim 1, wherein the fluorinated alkoxy silane comprises a fluorocycloalkyl group.

12. (Original) The process of Claim 1, wherein the molar ratio of the fluorinated alkoxy silane to the (epoxy)alkoxy silane is greater than about 0.1 to 4.

13. (Original) The process of Claim 1, wherein the weight percent of the nonlinear optical chromophore in the fluorinated sol-gel polymer is about 10 weight percent to about 50 weight percent.

14. (Original) The process of Claim 1, comprising catalyzing the reaction of the tetraalkoxy silane, the (epoxy)alkoxy silane, and the fluorinated alkoxy silane with a catalyst comprising deuteriochloric acid in deuterium oxide.

15. (Original) The process of Claim 1, further comprising c) forming a thin film comprising the nonlinear optical fluorinated sol-gel on a substrate; and d) poling the nonlinear optical fluorinated sol-gel to form an electro-optic fluorinated sol-gel.

16. (Original) The process of Claim 15, wherein forming the thin film comprises spin coating, dip coating, or brushing.

17. (Original) The process of Claim 15, wherein the substrate further comprises a cladding material, the cladding material having an index of refraction lower than the index of refraction of the electro-optic fluorinated sol-gel.

18. (Original) The process of Claim 17, wherein the cladding material comprises a polymer.

19. (Original) The process of Claim 1, wherein the alkoxysilyl group of the nonlinear optical chromophore comprises a trialkoxysilyl group.

20. (Original) The process of Claim 1, wherein the alkoxysilyl group of the nonlinear optical chromophore is attached to the donor.

21. (Original) The process of Claim 1 wherein the alkoxysilyl group of the nonlinear optical chromophore is attached to the acceptor.

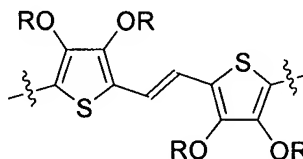
22. (Original) The process of Claim 1, wherein the nonlinear optical chromophore comprises two alkoxysilyl groups.

23. (Original) The process of Claim 22, wherein the two alkoxysilyl groups are attached to the donor.

24. (Currently amended) The process of Claim ~~23~~ 22, wherein one alkoxysilyl group is attached to the donor and one alkoxysilyl group is attached to the acceptor.

25. (Original) The process of Claim 1, wherein the π -bridge comprises a thiophene ring having oxygen atoms bonded directly to the 3 and 4 positions of the thiophene ring.

26. (Original) The process of Claim 25, wherein the π -bridge has the structure



wherein R is an alkyl group, a heteroalkyl group, an aryl group, or a heteroaryl group.

27-29. (Cancelled).